



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,659	11/28/2001	Manabu Kagami	P 284170 T36-137764M/KOH	8435
21254 7590 10/28/2004 MCGINN & GIBB, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			EXAMINER ANGEBRANDT, MARTIN J	
			ART UNIT 1756	PAPER NUMBER

DATE MAILED: 10/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/994,659

Applicant(s)

KAGAMI ET AL.

Examiner

Martin J Angebranndt

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 3/25/04 & 8/6/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-28 and 35-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 and 35-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/25/04 & 8/6/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

Art Unit: 1756

1. The response of the applicant has been read and given careful consideration. The examiner notes that the applicant has indicated in the claims that claims 29-34 are withdrawn and holds this a constructive assent to the election as no arguments concerning the propriety of the restriction are of record.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 35-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 35, the "entering" step should introduce a **second** light beam of a predetermined wavelength as the beams are in different places and vectors/directions and should indicate that it cures the photosetting resin. There is already one introduced in line 6 of the claims and adding - - second- - would help to more clearly distinguish between them

**The applicant points to figures 18A-E to support an assertion that the limitation need not be recited because embodiments outside that scope are disclosed. The applicant should pay close attention to figures 18C and 18D and the corresponding text in sections [0216-0219] of the prepub of the instant application which describes the beam "LB2" as inputted into the fiber [0217] and curing/hardening the solution [0219]. Therefore the rejection stands.**

In claims 38 and 39, the applicant should replace "acryloyl radical" with - - acrylate- - and "metacryloyl radical" with - - methacrylate- - . The radicals are not produced until polymerization is initiated, so it is more proper to describe the moiety. (ie. These radicals are

Art Unit: 1756

transient species formed during the irradiation and not the monomer found in photosetting solution.)

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-28 and 38-39 are rejected under 35 U.S.C. 102(a) as being fully anticipated by Kagami et al. JP 2000-347043.

Kagami et al. JP 2000-347043 (different inventive entity from instant application) teaches dipping an optical fiber into a solution of a mixture of photocurable monomers, irradiating the solution through the fiber with a first wavelength to selectively cure one of the monomers and form a waveguiding core (figures 3 a-c), followed by irradiating uniformly from the sides with a second wavelength to form a cladding (figure 3d) [0039-0040] and example 1 [0032]. The formation of step index waveguides is disclosed with respect to figure 4 [0041]. The formation of graded waveguides is disclosed with respect to figure 6 [0048]. Formulae describing the

Art Unit: 1756

propagation of the light as a function of the refractive indices appear throughout the reference (and the machine translation thereof accompanying this action). The use of an **acrylic monomer** system (free radical) and an **epoxy monomer** system (cationic) is clearly disclosed [0034]. The acrylic monomer (A) is disclosed as having a higher sensitivity than the epoxy (B) monomer in figure 2 and wavelength 1 is shown to be shorter than the longest wavelength able to cure monomer A, but longer than that able to cure monomer B.

The applicant argues that the selective use of free-radical or cationic polymerization is not taught. This is entirely incorrect and without merit. The applicant is directed to the use of acrylic monomers, which undergo free radical polymerization and epoxy monomers which undergo cationic polymerization and their different spectral sensitivities as shown in figure 3, which is identical to figure 17 of the instant specification. The fact that they have different spectral sensitivities as evidenced by figure 3 and the disclosure of separate curing of the first monomer in the cited example followed by the simultaneous curing of both meets the limitation of the claims clearly evidences that the disclosed methods anticipate the broadly claimed invention. The examiner points to the example of section [0034], which specifically describe an acrylic and epoxy monomer mixture. The broadly claimed invention of the cited claims is anticipated by the cited Japanese publication and in the now allowed US application to the same assignee. Drafting the claims of the instant application so that they do not overlap with the disclosures of the cited Japanese publication and the corresponding allowed US application would reduce the issues. The rejection stands.

The applicant had argued that the epoxy was not cured by cationic polymerization. The examiner notes that the applicants specifically describe the use of epoxies in the instant

Art Unit: 1756

specification and in claim 38. The also examiner points to the use of cationic polymerization mechanism of curing epoxies within the art as evidenced by Kawabata et al. '494. The features argued as not taught are clearly taught in the portion of the reference cited, please note the same figures are used and show the same type of curing as those in the instant application. To suggest that the reference is not functioning in the manner disclosed in that reference (ie photopolymerization takes place with respect to the first irradiation) is without merit as the different spectral sensitivity shown in figure 2 specifically addresses this issue. The applicant could obviate this rejection by perfecting priority. This could also be addressed by a sworn declaration by one of the common inventors specifically stating that the epoxy used was not cured using a cationic mechanism as the applicants are in a position to address this question of fact.

7 Claims 1-28 and 38-39 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Kagami et al. '188 (which matured from application 09/534458).

Kagami et al. '188 (different inventive entity from instant application) teaches dipping an optical fiber into a solution of a mixture of photocurable monomers, irradiating the solution through the fiber with a first wavelength to selectively cure one of the monomers and form a waveguiding core (figures 3 a-c), followed by irradiating uniformly from the sides with a second wavelength to form a cladding (figure 3d) (11/44-12/15) and example 1 (9/32-11/40). The formation of step index waveguides is disclosed with respect to figure 4 (12/15-33). The formation of graded waveguides is disclosed with respect to figure 6 (13/39-14/20). Formulae describing the propagation of the light as a function of the refractive indices appear throughout the reference. The use of an **acrylic monomer** system (free radical) and an **epoxy monomer**

Art Unit: 1756

system (cationic) is clearly disclosed (10/1-10). The acrylic monomer (A) is disclosed as having a higher sensitivity than the epoxy (B) monomer in figure 2 and wavelength 1 is shown to be shorter than the longest wavelength able to cure monomer A, but longer than that able to cure monomer B.

. This could also be addressed by a sworn declaration by one of the common inventors specifically stating that the epoxy used was not cured using a cationic mechanism as the applicants are in a position to address this question of fact.

8 Claims 1-28 and 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kagami et al. JP 2000-347043 or Kagami et al. '188, in view of Kawabata et al. '494.

Kawabata et al. '494 teaches the use of cationically curable materials (epoxies) mixed with free radically curable species (acrylates) and the separate curing of one of these via proper wavelength selection to facilitate refractive index imaging. (abstract, 1/31-37 and examples). Specific cationically curable materials include epoxies, polyglycidyl ethers, glycidyl ethers, and others (3/20-64). Useful free radically curable materials include acrylates, methacrylates, and others. (3/65-4/40).

It would have been obvious to use cationically and free radically curable monomers known to be useful in refractive index imaging with selective curing, such as those disclosed by Kawabata et al. '494 in place of the acrylates and epoxies specifically disclosed in the examples of Kagami et al. JP 2000-347043 or copending Application No. 09/534458 with a reasonable expectation of success based upon the disclosure of equivalence in refractive index modulation by Kawabata et al. '494

Art Unit: 1756

9 Claims 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-320422, in view of Anderson 702 and Kagami et al. JP 2000-347043.

JP 08-320422 teaches coupling various optical elements together, including laser diodes and optical fibers as shown in figures 58 and 62. The use of exposure from both direction is disclosed to facilitate improved coupling (lens like formation). Adjustment of the alignment is not disclosed. Note the disclosure with respect to figure 5.

Anderson '702 establishes that it is old and well known in the art to position the optical fiber for maximum power transfer from the diode laser prior to curing the epoxy using light (4/9-26)

It would have been obvious to one skilled in the art to modify the invention of JP 08-320422 by performing an alignment to maximize coupling efficiency as taught by Anderson '702 as this is old and well known in the art and further, it would have been obvious to one skilled in the art to modify the invention of JP 08-320422 combined with Anderson 702 by using the composition and two step curing of Kagami et al. JP 2000-347043 to improve the refractive index control of the core Vs. the cladding layers.

The applicant's arguments that the references applied are unrelated fails to appreciate the fact that they are all within the filed of fiber optics and waveguiding of light. The exposure from both directions to facilitate curing is not required by the claims and further, the use of two directions for exposure is disclosed by JP 08-320422. The optical transmission module is merely the optical connection between the fiber optical and other optical elements, such as detectors and the like. The examiner also notes that the formed articles clearly deal with waveguiding devices. The rejection stands.



Art Unit: 1756

10 Claims 1-28 and 38-39 of this application conflict with claims 1-8 and 11 of Kagami et al. '188. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

11 Claims 1-28 and 38-39 are directed to the same invention as that of claims 1-8 and 11 of Kagami et al. '188. The issue of priority under 35 U.S.C. 102(g) and possibly 35 U.S.C. 102(f) of this single invention must be resolved.

Since the U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302), the assignee is required to state which entity is the prior inventor of the conflicting subject matter. A terminal disclaimer has no effect in this situation since the basis for refusing more than one patent is priority of invention under 35 U.S.C. 102(f) or (g) and not an extension of monopoly.

**The applicant argues that they are not commonly assigned. The examiner points out that the assignees are both divisions of Toyota and that there are inventors in common. If the applicant continues to assert that these are in fact two different entities, then perhaps interference proceedings should occur. The assignees are invited to initiate such a procedure when the other application has issued and the instant claims are otherwise**

**allowable. This rejection is maintained until such time as interference proceedings are initiated.**

12 The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13 Claims 1-28 and 38-39 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 and 11 of Kagami et al. '188, in view of Houlihan et al. '304 and Kawabata et al. '494.

Houlihan et al. '304 establish that the use of free radical or cationic polymerization is known in the fiber optics filed. (4/63-65)

Although the conflicting claims are not identical, they are not patentably distinct from each other because they seek coverage for the same subject matter, albeit with slight differences in wording and it would have been obvious to use cationically and free radically curable monomers known to be useful in refractive index imaging with selective curing, such as those disclosed by Kawabata et al. '494 with a reasonable expectation of success based upon both free radical and cationic polymerization being known useful curing mechanisms in the fiber optic filed as evidenced by Houlihan et al. '304

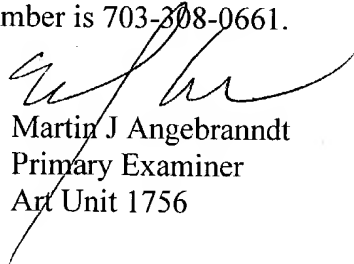
Art Unit: 1756

14 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebranndt whose telephone number is 571-272-1378.

The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9309 for regular communications and 703-872-9309 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Martin J Angebranndt  
Primary Examiner  
Art Unit 1756

October 22, 2004